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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/757,332

01/13/2004

Matthew S. Taubman

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05/09/2006

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EXAMINER

LAM, TUAN THIEU

ART UNIT

PAPER NUMBER

2816

DATE MAILED: 05/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/757,332

Applicant(s)

TAUBMAN, MATTHEW S.

Examiner

Tuan T. Lam

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 28,30-42 and 44-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 47,48 and 50 is/are allowed.
- 6) ☒ Claim(s) 28,30-42,44-46 and 49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

This is a response to the amendment filed 3/27/2006. Claims 28, 30-42 and 44-50 are under examination.

#### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 28, 30-31, 33-38, 40, 42, 44-45 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welland (USP 4,409,500) in view of Klein et al. (USP 5,444,579).

Figure 3 of Welland shows a circuit having a transistor (24) operating in common base, two input signal pathways ( $I_{in}$  and  $V_{in}$ ) coupled to a first terminal (emitter 22) of the transistor, providing a virtual ground at the first terminal of the transistor device (the first terminal of the transistor is at virtual ground because the positive terminal of the differential amplifier is grounded) through a current path to the virtual ground, wherein the path is continuously uninterrupted at all frequencies, providing an output from the second terminal of the transistor device to a current dependent load (where IRECT is connected to).

Figure 3 of Welland does not show a low pass filter having active and passive components coupled to the input current source  $I_{in}$  as called for in claims 28, 35 and 42. Figure 6 of Klein et al. uses a low pass filter (M11, R2, C2, M12 where transistors M11 and M12 are active components and R2 and C2 are passive element) for the purpose of filtering out the noise components from a current signal. Therefore, it would have been obvious to a person skilled in

Art Unit: 2816

the art at the time the invention was made to include a low pass filter in between the current input signal ( $I_{in}$ ) and the emitter of the transistor device of Welland for the purpose of filtering out noise thus preventing erroneous operation.

Regarding claim 35, the current source coupled to the collector of the transistor device is seen as Welland's transistor 40 (active component) being responsive to the input voltage ( $V_{in}$ ) via the transistor 34.

Regarding claim 42, the limitation of no reactive component are positioned between the first terminal of the transistor device and the servo device terminal is seen the direct feedback connected from the emitter of the transistor Q1 to the negative terminal of the servo device (10) of Welland.

Regarding claim 30, controlling the transistor with a servo device (10), providing feedback to the servo device from the first terminal of the transistor.

Regarding claims 31, 38 and 44, the negative feedback is coupled to the negative input of the differential amplifier 10, the positive input of the differential amplifier is coupled to ground.

Regarding claims 33, 34, 36, 40-41 and 45, the combination of Welland and Klein does not show the current dependent load having a current source providing current to a laser diode as called for in claims 33, 34, 36, 41 and 45. Although Welland does not specifically show the current dependent load that the signal  $I_{rect}$  is applied to, one skilled in the art would have been recognized that output current of Welland would be used to drive circuits (loads). The particular type of loads would be dependent upon the environment in which the Welland circuit would have been used. Thus, using a laser diode with a current source as a load would have been an obvious modification of Welland and will not be patentable under 35USC 103(a).

Regarding claim 49, the combination reference of Welland and Klein does not show a low pass filter coupled to the base of the transistor device. Figure 6 of Klein et al. uses a low pass filter (R2, C2) for the purpose of filtering out the noise components from a current signal. Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to include a low pass filter in between the differential amplifier 10 and the base 18 of the transistor device Q1 of Welland for the purpose of filtering out noise thus preventing erroneous operation.

Regarding claim 37, the combination of Welland and Klein does not show the current dependent load to be quantum cascade laser configuration. Although Welland does not specifically show the current dependent load that the signal  $I_{rect}$  is applied to, one skilled in the art would have been recognized that output current of Welland would be used to drive circuits (loads). The particular type of loads would be dependent upon the environment in which the Welland circuit would have been used. Thus, using quantum cascade laser diode would have been an obvious modification of Welland and will not be patentable under 35 USC 103(a).

Regarding claim 40, the input signal  $I_{in}$  and  $V_{in}$  are generated by a control signal generator (not shown).

3. Claims 32, 39 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welland (USP 4,409,500) in view of Klein (USP 5,444,579) and in further view of Prentice (Usp 6,344,762).

The combination of Welland and Klein shows all the limitations as noted above except for the limitation of a different transistor being coupled to the base of the transistor and the

different transistor including ground coupled emitter as called for in claims 32, 39 and 46. Figure 1 of Prentice shows the detailed structures of a differential amplifier having emitter coupled to ground. Prentice's differential amplifier is simply having only two transistors and two resistors thus saving space on a chip and minimize power consumption. Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to use Prentice's differential amplifier in place of Welland's differential amplifier (10) for the purpose of saving space and reduce power consumption.

#### ***Response to Arguments***

4. Applicant's arguments filed 3/27/2006 have been fully considered but they are not persuasive.

Regarding claim 28, applicant argues that Klein's figure 6 does not teach a filter having passive and active components are not persuasive. Klein's figure 6 shows a filter circuit for filtering noises from the input current 101. The filter circuit comprises active components (M11 and M12) and passive components (R2 and C2). Therefore, the limitation of one of the input signal pathway is from a current source (input current  $I_{in}$ ) with a low pass filter (M11, R2, C2 and M12 of Klein's figure 6) is fully met from the combination of Welland and Klein references.

Applicant argues that there is no motivation for combining Welland and Klein references is not persuasive. Although, Welland does mention noise to be an issue, including a filter for filtering unexpected noises is always desirable features preventing erroneous operation. Therefore, it would have been obvious to one skilled in the art to filter the unexpected noise from the input signal of Welland for the purpose of preventing erroneous operation.

Art Unit: 2816

Regarding dependent claims 30, 31, 33, 34 and 49, claim 28 is not patentable over Welland and Klein references, therefore, dependent claims 30, 31, 33, 34 and 49 are not allowable for the same reasons.

Regarding claims 32, 39 and 46, (applicant inadvertently identified as claim 33, see page 12 of applicant's marks), the amplifier 10 of Welland is replaced with the Prentice's amplifier in figure 1. The different transistor recited in claim 32 will be the Prentice's transistor Q2 coupling to the base of the transistor device (24 of Welland), the different transistor (Q2) including ground coupling emitter. Therefore, the rejection of claims 32, 39 and 46 is deemed proper.

Regarding claim 35, applicant argues the combination of Welland and Klein does not show the current source coupled to the collector of the transistor device is not persuasive. The recited current is seen as Welland's transistor Q3 (active component) being responsive to the input voltage ( $V_{in}$ ) via the transistor Q2. Therefore, claim 35 remains rejected under 35USC 103(a).

Regarding claim 41, applicant pointed out that there is no statutory basis set forth in the Office action for any rejection of claim 41 is not founded. Page 4 of the Office action dated on 10/22/20005 indicated that claim 41 is rejected under 35USC 103(a) along with other rejected claims 33, 34, 36, 40 and 45. Furthermore, the first current source recited in claim 41 is Welland's transistor Q3 and the second current source is the input current source ( $I_{in}$ ).

Regarding dependent claims 36-38, 40-41, since claim 35 is not patentable over Welland and Klein references, therefore, dependent claims 36-38, 40-41 are not allowable for the same reasons.

Art Unit: 2816

Claim 42 remains rejected under 35USC 103(a) as being unpatentable over the combination of Welland and Klein references for the same reasons as in claim 28. See above for the details of the rejection and arguments.

Regarding dependent claims 44 and 45, since claim 42 is not patentable over Welland and Klein references, therefore, dependent claims 44 and 45 are not allowable for the same reasons.

***Allowable Subject Matter***

5. Claims 47-48 and 50 are presently allowed.
6. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or suggest providing AC output and a DC output from a third terminal of the transistor device for connection to a load, the AC output being a separate output from the DC output as called for in claim 47 and shown in figure 5.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,



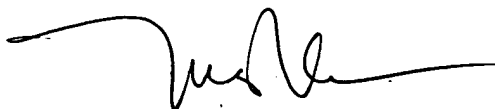
Art Unit: 2816

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T. Lam whose telephone number is 571-272-1744. The examiner can normally be reached on Monday to Friday (7:30 am to 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIMOTHY P. CALLAHAN can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tuan T. Lam  
Primary Examiner  
Art Unit 2816

5/6/2006